



MMH IS A 501(c)(3) NON-PROFIT CORPORATION  
DEDICATED TO THE DOCUMENTATION,  
CONSERVATION, AND PRESERVATION OF  
MINNESOTA'S FINITE MARITIME CULTURAL RESOURCES

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Minnesota Archaeology Licenses  
21-225, 22-076

Mille Lacs Lake Underwater Archaeology Series

# Mille Lacs Lake Phase I Sonar Survey Report



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Ann Merriman, Christopher Olson, and Maritime Heritage Minnesota

## Acknowledgments

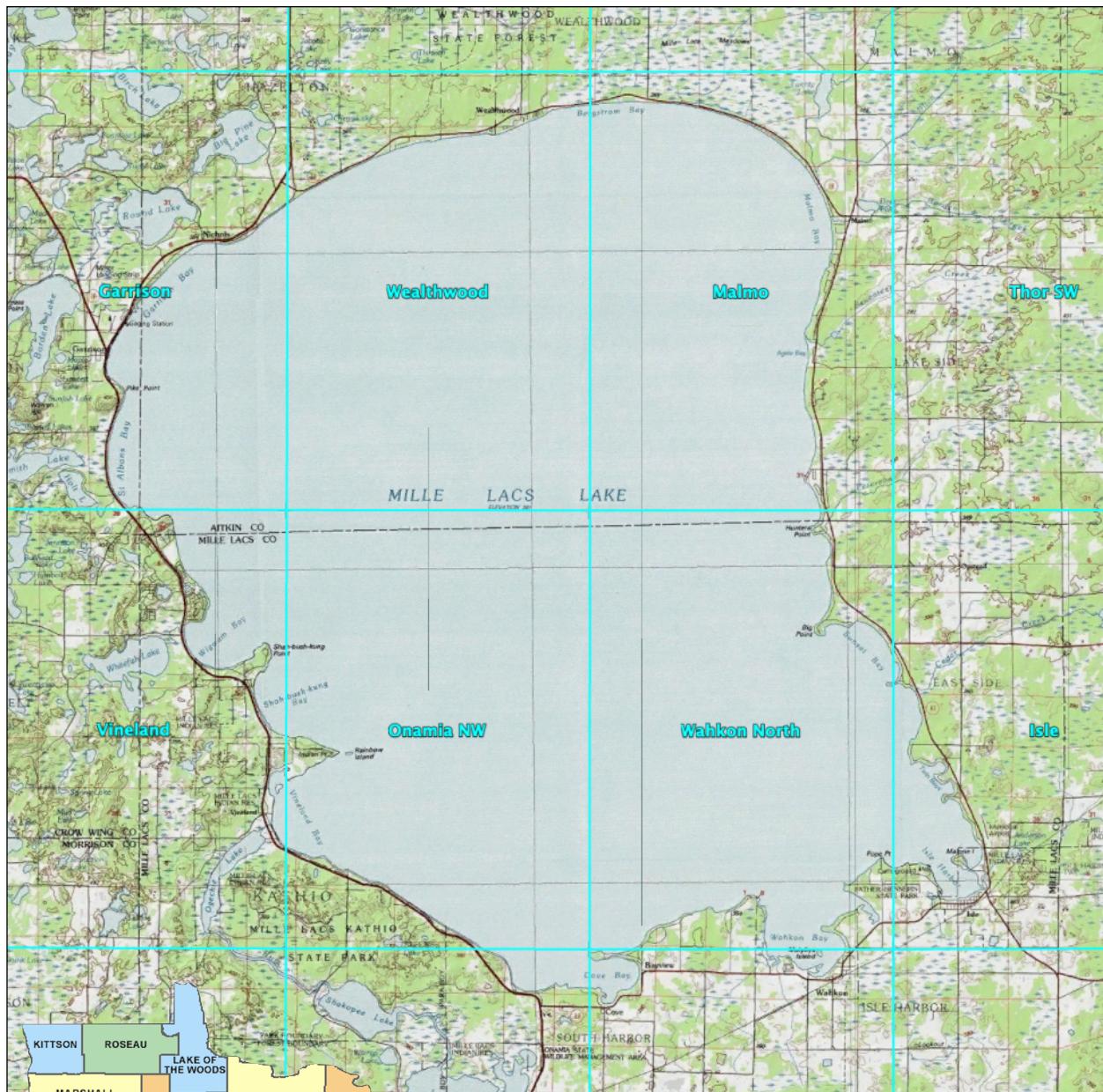
Maritime Heritage Minnesota (MHM) thanks Ardy and Jack Becklin for 2 monetary donations that allowed MHM to conduct this project; without this funding, the work would not have been conducted. We also thank Cheryl Ahlcrona and Carl Floren for providing boat storage near Mille Lacs Lake during both fieldwork years. Further, we thank our friend and supporter Mike Brill for his knowledge and suggestions pertaining to scanning locations. We thank Bruce Koenen and Amanda Gronhovd of the Office of the State Archaeologist for their efforts. Lastly, MHM thanks our Board of Trustees Michael F Kramer, Deb Handschin, and Steve Hack for their continued support.

*“A small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM)...re-establish[ed] the discipline of underwater archaeology in Minnesota. MHM [has] conducted...groundbreaking nautical archeological and maritime historical research.”*

~Steve Elliott, Former Minnesota Historical Society CEO and Director, January 2015

## MHM





A map of Mille Lacs Lake  
(USGS 1968a-f, 1973a-c)



The red circle marks the location  
of Mille Lacs Lake in north-central  
Minnesota

## Introduction

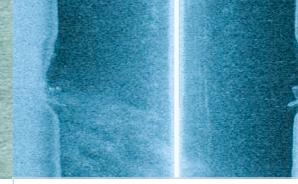
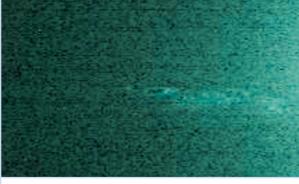
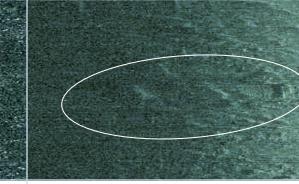
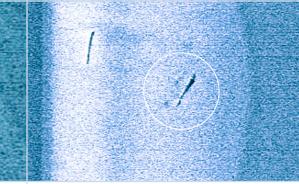
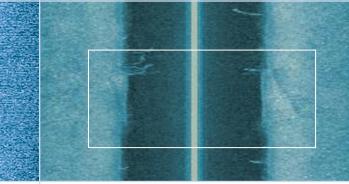
Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial – Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statutes as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).

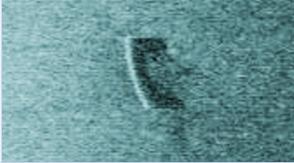
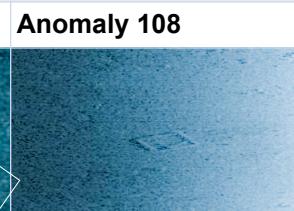
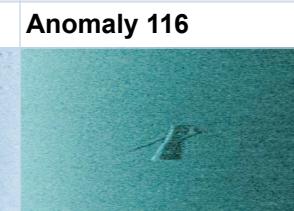
## Preface

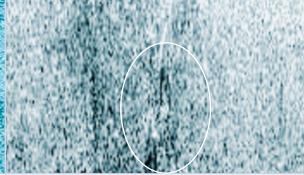
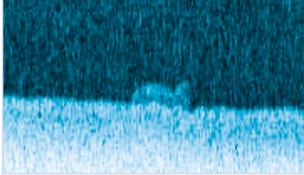
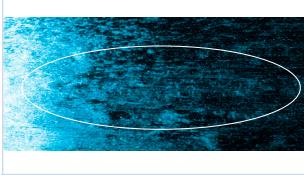
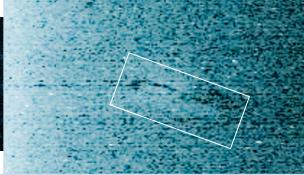
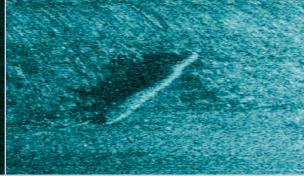
Mille Lacs Lake is bordered by Crow Wing, Aitkin, and Mille Lacs Counties in north-central Minnesota. MHM began the side and down-imaging sonar survey of Mille Lacs Lake in 2021, between September 28-October 17; 52 anomalies were identified on the lake bottom during sonar data review. The second year of survey took place between May 10 and August 31, 2022; an additional 73 anomalies were recognized in the sonar footage recorded at that time. Therefore, MHM has determined that - to date - 125 targets on the bottom of Mille Lacs Lake may be submerged cultural resources.

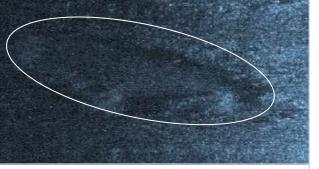
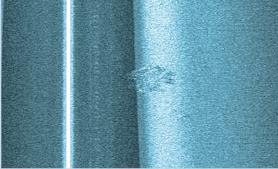
### **Results of the Mille Lacs Lake Phase I Sonar Survey Project (MLLSS) Minnesota Archaeology Licenses 21-225, 22-076**

Of the 125 anomalies designated by MHM as possible submerged cultural resources on the bottom of Mille Lacs Lake, 67 of them are more likely than the other 58 targets to be wrecks or another human-made site/object. MHM contends that 5 anomalies are wrecks (A40, A32, A28, A3, A14), 2 anomalies are likely wrecks (A56, 105), and 11 anomalies are probably wrecks (72, 41, 77, 80, 81, 75, 68, 13, 11, 74, 65). These 18 targets will be examined first when SCUBA reconnaissance commences in Mille Lacs Lake. The remaining 49 'promising' anomalies and 58 other anomalies will be investigated systematically depending on their probable nature, their location, lake conditions, and safety concerns.

67 Anomalies			
Anomaly 40		Anomaly 32	
			
Anomaly 28	Anomaly 3	Anomaly 14	Anomaly 56
			
Anomaly 105		Anomaly 72	Anomaly 41
			
Anomaly 77	Anomaly 80	Anomaly 81	Anomaly 75
			
Anomaly 68	Anomaly 13	Anomaly 11	Anomaly 74
			
Anomaly 65	Anomaly 50	Anomaly 51	Anomaly 73
			

Anomaly 123	Anomaly 102	Anomaly 125	Anomaly 97
			
Anomaly 70	Anomaly 57	Anomaly 63	Anomaly 42
			
Anomaly 9a & 9b	Anomaly 9a	Anomaly 100	Anomaly 109
			
Anomaly 124	Anomaly 112	Anomaly 115	Anomaly 25
			
Anomaly 78	Anomaly 108	Anomaly 116	Anomaly 22
			
Anomaly 43	Anomaly 76	Anomaly 69	Anomaly 111
			

Anomaly 122	Anomaly 47	Anomaly 94	
			
Anomaly 52	Anomaly 48	Anomaly 17	Anomaly 103
			
Anomaly 87	Anomaly 49	Anomaly 92	Anomaly 82
			
Anomaly 114	Anomaly 62	Anomaly 64	Anomaly 38
			
Anomaly 44	Anomaly 53	Anomaly 99	Anomaly 60
			
Anomaly 88	Anomaly 93	Anomaly 106	Anomaly 107
			

58 Anomalies			
Anomaly 101	Anomaly 35	Anomaly 89	Anomaly 83
			
Anomaly 113	Anomaly 86	Anomaly 5	Anomaly 15
			
Anomaly 21	Anomaly 34	Anomaly 54	Anomaly 55
			
Anomaly 61	Anomaly 95	Anomaly 18	Anomaly 10
			
Anomaly 16	Anomaly 19	Anomaly 20	Anomaly 26
			
Anomaly 29	Anomaly 27	Anomaly 30	Anomaly 31
			

Anomaly 33	Anomaly 36	Anomaly 37	Anomaly 39
Anomaly 67	Anomaly 84	Anomaly 85	Anomaly 91
Anomaly 23	Anomaly 12	Anomaly 58	Anomaly 24
Anomaly 96	Anomaly 66	Anomaly 79	Anomaly 59
Anomaly 110	Anomaly 1	Anomaly 2	Anomaly 7
Anomaly 45	Anomaly 118	Anomaly 119	Anomaly 120

<b>Anomaly 121</b> 	<b>Anomaly 117</b> 	<b>Anomaly 98</b> 	<b>Anomaly 46</b> 
<b>Anomaly 4</b> 	<b>Anomaly 6</b> 	<b>Anomaly 90</b> 	<b>Anomaly 71</b> 
<b>Anomaly 104</b> 	<b>Anomaly 8</b> 		

## Conclusion

The sonar data produced during the MLLSS Project contains interesting anomalies that may be significant nautical, underwater, or maritime archaeological sites. The anomalies recorded on the bottom of Mille Lacs Lake have the potential to be thousands of years old, such as dugout canoes fabricated by Indigenous People. MHM has documented and C14-dated 13 Minnesota dugout canoes held in historical societies and museums, and 1 example that is still *in situ* in Lake Minnetonka<sup>1</sup>. Other watercraft types that may lie on the bottom of the lake include birch bark canoes (unlikely, but possible), small historic planked boats, transportation steamers, and barges constructed of wood, steel, aluminum, and fiberglass. Dive reconnaissance will answer MHM's questions about the anomalies and maritime historical research will place the sites into their contexts. The types of watercraft wrecks that will be identified on the bottom of Mille Lacs Lake are the physical representations of Minnesota Nautical Archaeology and Maritime History.

Anomaly 40 appears to be an open fishing boat of the type that were built by numerous Minnesota companies (Dingle, Moore, Ramaley, Alexandria Boat Works, Larson, Alumacraft, Crestliner, among others) and other American manufacturers since the 1800s. Anomaly 32's sonar signature strongly suggests it is a runabout of the type constructed by Hugo's Boat Works of Onamia<sup>2</sup> on the south side of Mille Lacs Lake, as well as Chris Craft, Century, Correct Craft, Higgins, and dozens of other companies. Further, Anomaly 28 may be a small craft of the type designed and constructed by the Indian Trading Post Boat Company in Vineland on the southwest end of the lake.<sup>3</sup> Anomaly 3 appears to be the bottom of a wreck's hull with frames and a keelson visible, and/or with surviving athwartships bench seats. Anomaly 14 is buried up to the gunwale with the bow and transom exposed; no more details about this probable wreck can be discerned without underwater reconnaissance. Anomaly 56 may be a capsized boat wreck that is resting on its windshield and Anomaly 105 appears to be the amidships and aft sections of an open wreck, like a utility style.

Numerous anomalies resemble wreck 'outlines' - mostly with at least one pointed 'end' that suggests a bow - on the lake bottom, often in vegetation. The most promising of these targets include A72, A41, A77, A80, A81, A68, A13, A11, A76, A82, A25, A78, A69, A87, A49, and A92. Of these target outlines, Anomaly 68 is similar to Anomaly 14 (above), except that it appears to be the inner bottom hull and keelson of a wreck, or a nearly buried capsized wreck with its keel exposed. If this anomaly is a wreck, it is double-ended - meaning it has 2 pointed ends. Anomalies 72, 41, 13, 11, 76, 69, and 87 exhibit 1 pointed 'bow' end and 1 square 'transom' end - the 'traditional' design of most watercraft. The 'stern' of A76 is square and it seems the port and starboard quarters rest slightly off the lake bottom, with vegetation covering the target amidships<sup>4</sup>. Anomalies

<sup>1</sup>See MHM's dugout canoe reports (Merriman and Olson 2014b, 2015c, 2016c, 2022b).

<sup>2</sup>MHM 3D scanned and documented one of Hugo's boats that is part of an outdoor sculpture in Silverwood Park in St. Anthony (Merriman and Olson 2020a, 35-47).

<sup>3</sup>MHM 3D scanned and documented an Indian Trading Post Boat Company watercraft held at the Minnesota Historical Society (Merriman and Olson 2017b, 9-20) and identified a similar wreck in Lake Minnetonka, the Wooden Outboard Utility Wreck, 21-HE-491 (Merriman and Olson 2016b, 15-17).

<sup>4</sup>The Overturned Wooden Scow Wreck, 21-HE-531, and the Fiberglass Scow Sailboat Wreck, Anomaly 688, in Lake Minnetonka have similar acoustical signatures to Anomaly 76 (Merriman and Olson 2018, 29; 2019a, 7-9).

77 and 78 appear to be double-ended like A68, and Anomalies 80, 81, and 92 may be wrecks with rounded ends or decks.

Anomaly 73 is a rectangular object; its acoustical signature was recorded in the sonar unit's down image, confirming the actual nature of the object; it appears to be constructed of planked wood with rounded protrusions on one end. Sixteen other anomalies (A75, A123, A102, A125, A97, A70, A9a, A63, A42, A100, A109, A124, A112, A115, A108) are rectangular or square and may be barges<sup>5</sup>, docks<sup>6</sup>, fish house parts<sup>7</sup> - and some of them may be cut logs with significant acoustical shadows that resemble solid rectangles. Anomaly 75 is a rectangular outline that may or may not be a cultural resource; it is possible that the acoustical signature that resembles a rectangle is simply vegetation casting shadows. MHM is confident that A123 is a cultural resource based on the silt/sand/gravel that 'covers' part of the anomaly's signature that would otherwise be its acoustical shadow. Four other anomalies could be human-made objects or logs with large 'shadows' (A102, A125, A97, A112). Two large anomalies (A9a, A63) are likely canopy frames<sup>8</sup> or docks, but they may also be watercraft, probably barges; dive reconnaissance will answer this question. Anomaly 105 may be the rear half of a runabout or other wreck or section of a barge. Five rectangular anomalies, mostly buried, may be barges or an other type of vessel (A42, A100, A109, A124, A115), while Anomalies 25 and 78 are rectangles outlined by vegetation. Lastly, Anomaly 108 is a square - possibly the bottom of a fish house or something similar.

The sonar signatures of **4** anomalies (Anomalies 65, 50, 51, 52) suggest they may be sunken watercraft; A50 resembles a dugout canoe, but it could be a rotted tree trunk. If A65 is a wreck, it is comprised of the hull bottom and the partial side of a vessel that survives at least to the turn of the bilge<sup>9</sup>. Anomaly 57 is comprised of a rectangular object that casts a significant acoustical shadow and a flat rectangular object lying nearby; only dive reconnaissance can determine its nature. Anomaly 22 appears to be an object that has been dragged along the lake bottom, or it traveled along the bottom for a distance after sinking. The anomaly may be a wreck or vehicle; MHM has documented a wreck in Lake Minnetonka that was also dragged or traveled along the lake bottom, with drag marks evident in the sonar image and when the site was documented using SCUBA reconnaissance.<sup>10</sup> Four 'promising' anomalies may be small craft (Anomalies 43, 111, 122, 17), and Anomaly 74 might be a wreck imbedded in the

<sup>5</sup>Lake Minnetonka has 7 barges identified on its bottom dating from the 1870s to the 1980s: Wayzata Bay Wreck, 21-HE-401; Half-Decked Barge Wreck, 21-HE-505; Open Barge Wreck, 21-HE-529; St. Albans Bay Wreck, 21-HE-400; Hopper Barge Wrecks, 21-HE-441; Echo Bay Barge Wreck, Anomaly 54 (Merriman and Olson 2013a, 7-11, 14-16, 43-45; 2014a, 8-14; 2018a, 7-9; 2019a, 5-7).

<sup>6</sup>Lake Johanna has the Big Dock (Anomaly 22) on its bottom; MHM contends it was constructed during the extreme drought of the 1930s to 'reach' the receding lake. When the lake filled back up, the dock was submerged. Another large dock (Anomaly 54) and a smaller dock section (Anomaly 62) are submerged in Prior Lake. Two dock sections (Anomalies 368, 736) have been identified in Lake Minnetonka as well (Merriman and Olson 2014a, 47; 2018a, 30-31; 2019c, 7; 2020b, 8).

<sup>7</sup>Prior Lake has 2 fish houses (Anomalies 8.2, 30) on its bottom, White Bear Lake has one submerged plywood fish house (Anomaly 14), and a portable fish house (Anomaly 25) lies on the bottom of Crystal Lake (Merriman and Olson 2014c, 24-25; 2020d, 22; 2023a, 21-22).

<sup>8</sup>Canopy frames, separated from their boat lifts, have been identified in Lake Minnetonka, Anomalies 97, 721, and Prior Lake, Anomalies 4, 8.1, 28.1-2, 61 (Merriman and Olson 2018a, 30; 2019, 8-9).

<sup>9</sup>The acoustical signature of the *Saucy Kate* Wreck in Lake Minnetonka is similar to Anomaly 65 (Merriman and Olson 2013b, 11-16).

<sup>10</sup>The Homemade Fiberglass Utility Wreck, Anomaly 1010 in Lake Minnetonka, was dragged or traveled along the lake bottom, leaving obvious marks (Merriman and Olson 2022a, 47-52).

lake bottom and extending into the water column. MHM has identified and documented 7 of these 'standing up' wrecks in Lake Minnetonka<sup>11</sup> and Prior Lake<sup>12</sup>, along with 2 cars standing vertically in Medicine Lake<sup>13</sup>.

Three anomalies have significant acoustical signatures. Anomaly 44 is wreck-shaped, but may also be vegetation. Anomalies 53 and 99 are tall thin objects standing off the lake bottom; they may be buoy remnants or thin tree stumps. Two small anomalies, A112 and A48, appear to be watercraft. However, the intensity of their acoustical signatures is the significant attribute they display because it indicates they may be constructed of metal or fiberglass. Twelve anomalies (A116, A47, A94, A103, A114, A62, A64, A38, A60, A88, A93, A107) have diverse shapes that may or may not be human-made resources; they currently cannot be placed into a category of possible wreck types or construction materials. However, the acoustical signatures are significantly detailed or large to be labeled as promising targets. Lastly, A106 is probably a large rock, but it has a unique shape that includes sharp corners that suggest it might be a cultural resource. Of the remaining 58 anomalies so-far identified during Mille Lacs Lake remote-sensing sonar surveys, Anomalies 89 and 113 appear to be double-ended wrecks; they may be very small canoes or duck boats<sup>14</sup>. Anomaly 84 may also be a small wreck; these targets and the other 55 anomalies may be systematically investigated in the future.

The wrecks and sites that will be identified during future fieldwork will join dozens of other submerged cultural resources already identified in the Minnesota lakes and rivers that MHM has been investigating. Comparing and associating these new sites with known sites increases our understanding of the historical contexts within which these submerged cultural resources operated or that were exploited by Minnesotans. The diversity of nautical, maritime, and underwater sites so far identified in Minnesota are tangible examples of our shared rich maritime history. Through research, remote sensing sonar surveys, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Minnesota's submerged cultural resources into the future.

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<sup>11</sup>Five of Lake Minnetonka's wrecks are upright in the water column - Upright Larson All-American 165 Wreck, Anomaly 884; Upright Chris-Craft Stinger SL LTD Wreck, Anomaly 749; Alumacraft Model A Wreck, Anomaly 462; Red Fiberglass Wreck, Anomaly 32; and the Fiberglass Drag Boat Wreck, Anomaly 23 (Merriman and Olson 2013b, 47-50; 2014a, 29-30, 42-44; 2015b, 17-18; 2019a, 36-40; 2022a, 41-46).

<sup>12</sup>The Glasspar G-3 Skiboat Wreck, Anomaly 18, and the Fiberglass Hydroplane Wreck, 21-SC-109, both extend into the water column in Prior Lake (Merriman and Olson 2017c, 8-14).

<sup>13</sup>One of the cars in Medicine Lake is a 1963 AMC Rambler, Anomaly 59, and the other is a Chevy Nova, Anomaly 46 (Merriman and Olson 2020c, 6-8).

<sup>14</sup>Lake Minnetonka: Sea King Aluminum Canoe Wreck, Anomaly 107; Aluminum Canoe Wreck, Anomaly 12; Half Canoe Wreck, Anomaly 500; Forester Shagawa Canoe Wreck, Anomaly 694. White Bear Lake (Anomaly 18). Lake Pulaski (Anomaly 51). Lake Minnewaska (Anomaly 5). Prior Lake: Wooden Double-Ended Duck Boat Wreck, 21-SC-136. MHM 3D scanned a Parkers Prairie Boat Works duck boat (Merriman and Olson 2013b, 44-46; 2014a, 31-32; 2014c, 18-21; 2015a, 26; 2018b, 13-19; 2019b, 7-8; 2023b, 8-9; 2023c, 4-10).

## References

Marken, M.W., A. Ollendorf, P. Nunnally, and S. Anfinson. 1997. *Beneath Minnesota Waters: Minnesota's Submerged Cultural Resources Preservation Plan*. Summit EnviroSolutions, Inc. and Braun Intertec, St. Paul. Report prepared for the State Historic Preservation Office, Minnesota Historical Society: St. Paul, MN.

Merriman, Ann, and Christopher Olson. 2013a. *Lake Minnetonka Nautical Archaeology Project 1 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2013b. *Lake Minnetonka Nautical Archaeology Project 2 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2014a. *Lake Minnetonka Nautical Archaeology Project 3 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2014b. *Minnesota Dugout Canoe Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2014c. *White Bear Lake Nautical Archaeology 1 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2015a. *Lake Minnetonka Nautical Archaeology Project 4 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2015b. *Lake Minnetonka Nautical Archaeology Project 5 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2015c. *Minnesota Dugout Canoe Project 2 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2016a. *Big Swan Dugout Canoe: 3D Scanning and Radiocarbon Testing Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2016b. *Lake Minnetonka Nautical Archaeology Project 6 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2016c. *Minnesota Dugout Canoe Project 3 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2017a. *Lake Minnetonka Nautical Archaeology Project 6 Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2017b. *Minnesota Small Craft Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

\_\_\_\_\_. 2017c. *Minnesota Suburban Lakes Nautical Archaeology I: Prior Lake*. Maritime Heritage Minnesota: St. Paul, MN.

- \_\_\_\_\_. 2018a. *Lake Minnetonka Nautical Archaeology Project 8 Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2018b. *Minnesota Purpose-Built Watercraft and 3D Scanning Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2019a. *Lake Minnetonka Nautical Archaeology Project 9 Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2019b. *Lake Pulaski: Minnesota Suburban Lakes Nautical Archaeology 2 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2019c. *Prior Lake: Minnesota Suburban Lakes Nautical Archaeology 2 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2020a. *Minnesota Historic Runabouts Analysis and 3D Scanning Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2020b *Minnesota Suburban Lakes Nautical Archaeology 3 Project: Lake Johanna*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2020c. *Minnesota Suburban Lakes Nautical Archaeology 3 Project: Medicine Lake*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2020d *Minnesota Suburban Lakes Nautical Archaeology 3 Project: Prior Lake*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2022a. *Lake Minnetonka Underwater Archaeology Project: Anomaly Identification and Assessment Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2022b. *Phase II Excavation of the Dakota Unfinished Dugout Canoe Wreck 21-HE-557*.
- \_\_\_\_\_. 2023a. *Crystal Lake Underwater Archaeology Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2023b. *Lake Minnewashta Underwater Archaeology Project Report*. Maritime Heritage Minnesota: St. Paul, MN.
- \_\_\_\_\_. 2023c. *Prior Lake Underwater Archaeology Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

United States Geological Survey. 1968a. *Isle Quadrangle*. Department of the Interior: Washington, DC.

\_\_\_\_\_. 1968b. *Onamia Quadrangle*. Department of the Interior: Washington, DC.

- \_\_\_\_\_. 1968c. *Onamia NW Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1968d. *Vineland Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1968e. *Wahkon North Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1968f. *Wahkon South Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1973a. *Garrison Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1973b. *Malmo Quadrangle*. Department of the Interior: Washington, DC.
- \_\_\_\_\_. 1973c. *Wealthwood Quadrangle*. Department of the Interior: Washington, DC.